

Introduction

The safety of carotid endarterectomy in patients with a response to antiplatelet agents (aspirin and clopidogrel) confirmed by point-of-care testing is unknown. We set out to determine whether using point-of-care assessment of platelet inhibition reveals risk factors for operative complications or predicts clinical outcomes.

Methods

We reviewed records of carotid endarterectomy patients from March 2013 to July 2015 for demographics, lesion characteristics, laboratory data, procedural complications, and follow-up. Administration of aspirin, clopidogrel, or therapeutic anticoagulation within 5 days before surgery was recorded.

Results

We analyzed 79 patients with 86 lesions (mean age 70.9 ± 10.0 years). More patients with a P2Y12 reaction unit (PRU) <170 had neck hematomas (4/10, 40.0%) compared with those with a PRU $=170$ (2/9, 22.2%), and more aspirin responders had neck hematomas (7/31, 22.6%) compared with non-aspirin responders (1/13, 7.7%); however, neither difference was statistically significant (Fisher's exact test, $P=.63$ and $P=.40$, respectively). Estimated blood loss (EBL) $=100$ mL was more frequent among patients with PRU <170 (9/10, 90.0%) than among those with PRU $=170$ (5/9, 55.6%) ($P=.09$). Clopidogrel use, regardless of response, independently predicted neck hematoma in a logistic regression model, with increased odds of 8.5. Mean postoperative modified Rankin Scale scores did not differ statistically between clopidogrel users and non-users at a mean follow-up of 108.5 ± 146.3 days ($P=.27$).

Conclusions

Clopidogrel use within 5 days of carotid endarterectomy independently predicted postoperative neck hematomas, most of which were managed conservatively. Patients with PRU <170 were more likely to have EBL $=100$ mL during surgery and surgery lasting $=3$ hours.

Learning Objectives

1. To discuss current literature regarding neurosurgical procedures in the setting of clopidogrel use.
2. To discuss current literature regarding carotid endarterectomy on antiplatelet therapy.
3. To discuss management of patients on antiplatelet therapy prior to carotid endarterectomy.

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